



WISCONSIN DEPARTMENT OF HEALTH SERVICES
Division of Public Health
Bureau of Communicable Diseases and Emergency Response



Respiratory virus surveillance report for the week ending March 14, 2015 week 15-10

AT-A-GLANCE

- Respiratory viruses identified this week :
Influenza A/H3N2, influenza B and RSV were the predominant viruses this week.

- Influenza-like illness (ILI) activity for this week

Wisconsin	Moderate
Wisconsin (CDC level)	Low
Northwestern Region	High
Northeastern Region	Moderate
Southeastern Region	Moderate
Southern Region	Low

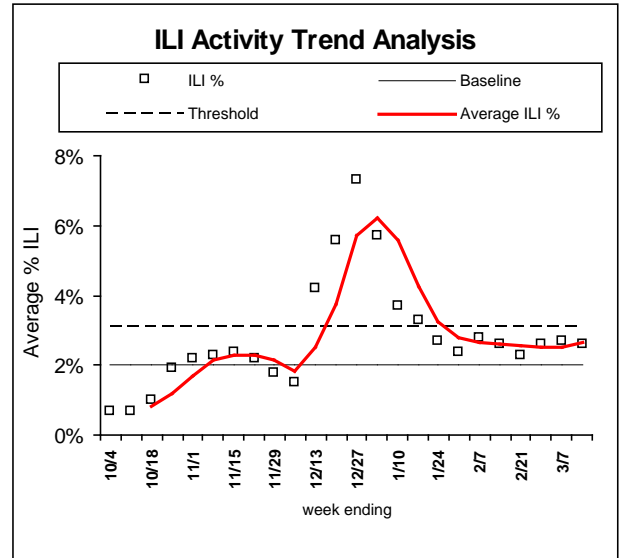
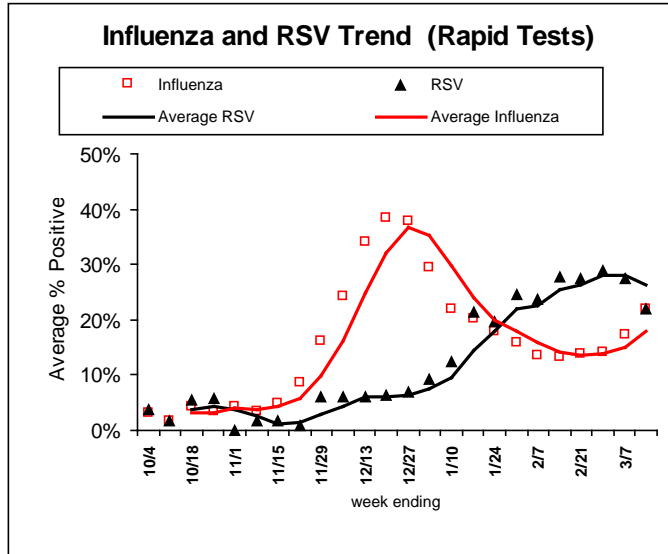
- ILI activity in Region V of the U.S. (WI, MN, IL, MI, OH, IN) is above baseline levels
- ILI activity in the U.S. is above baseline levels
- The Predictive Value Positive (PVP) for rapid influenza and RSV tests is: Increasing
(PVP is the probability of disease in a patient with a positive test result)
- The Predictive Value Negative (PVN) for rapid influenza and RSV tests is:
Decreasing (PVN is the probability of not having disease when the test result is negative)
- Influenza-associated pediatric deaths reported (October 4, 2014-present)

	<u>Week 15-10</u>	<u>Total to Date</u>
Wisconsin	0	6
Nationwide	3	107

WISCONSIN and REGIONAL SUMMARIES
(Trend analysis based on 3-week moving averages)

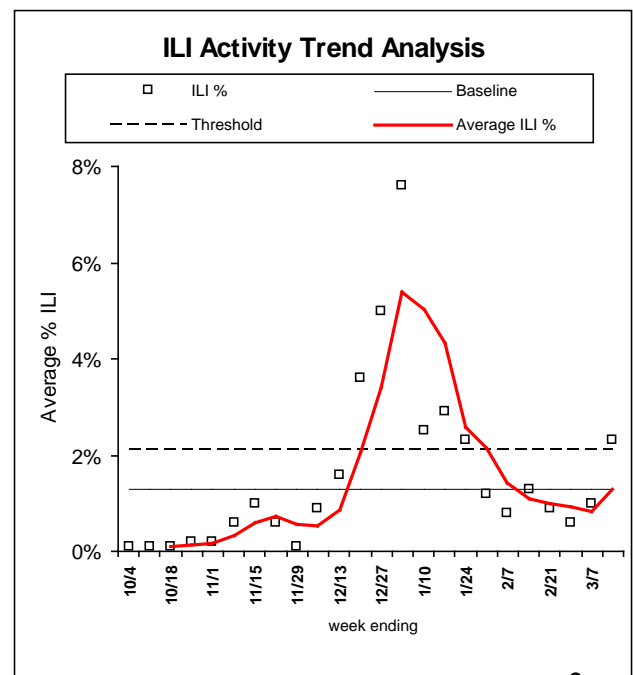
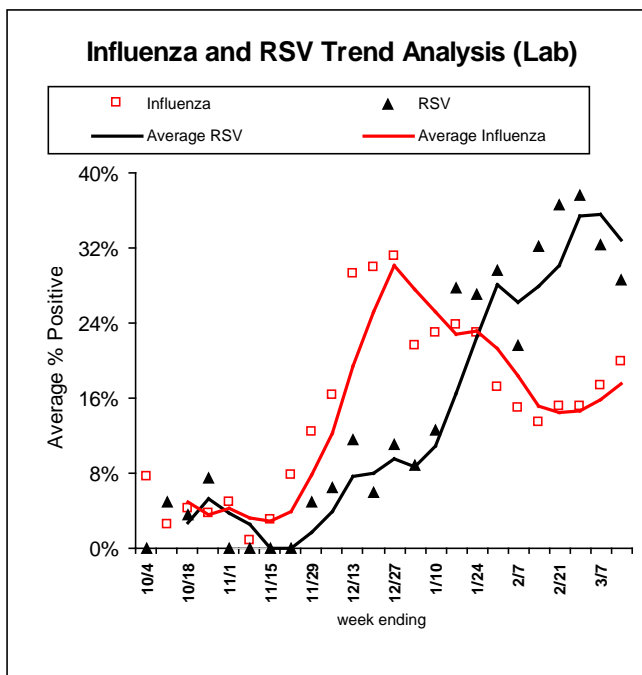
Wisconsin (ILI activity is Moderate)

INFLUENZA RAPID ANTIGEN TESTS					RSV RAPID ANTIGEN TESTS			INFLUENZA-LIKE ILLNESS		
Tested	Positive			% Positive	Tested	Positive	% Positive	ILI %	Baseline	Threshold
	Flu A	Flu B	Total							
1293	35	249	284	22.0%	289	64	22.1%	2.6%	2.0%	3.1%



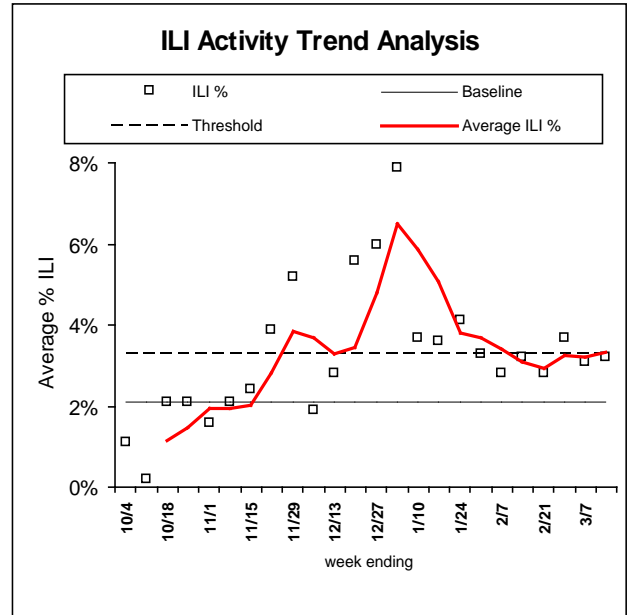
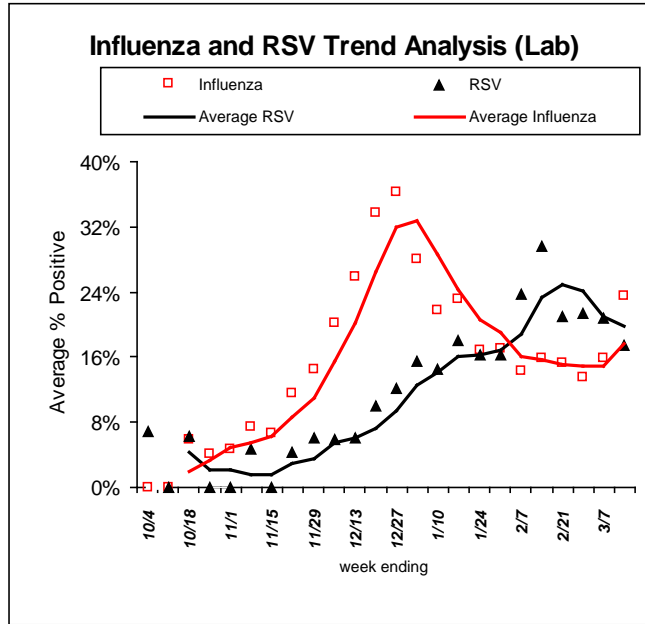
Northwestern Region (ILI activity is High)

INFLUENZA RAPID ANTIGEN TESTS					RSV RAPID ANTIGEN TESTS			INFLUENZA-LIKE ILLNESS		
Tested	Positive			% Positive	Tested	Positive	% Positive	ILI %	Baseline	Threshold
	Flu A	Flu B	Total							
360	13	59	72	20.0%	119	34	28.6%	2.3%	1.3%	2.1%



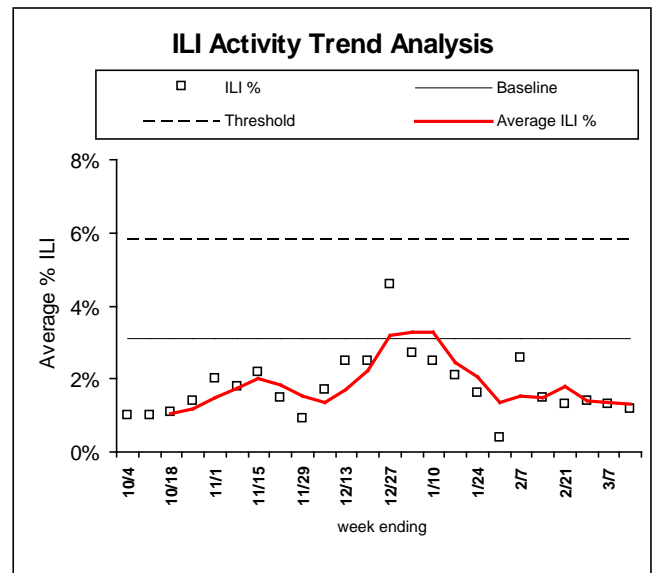
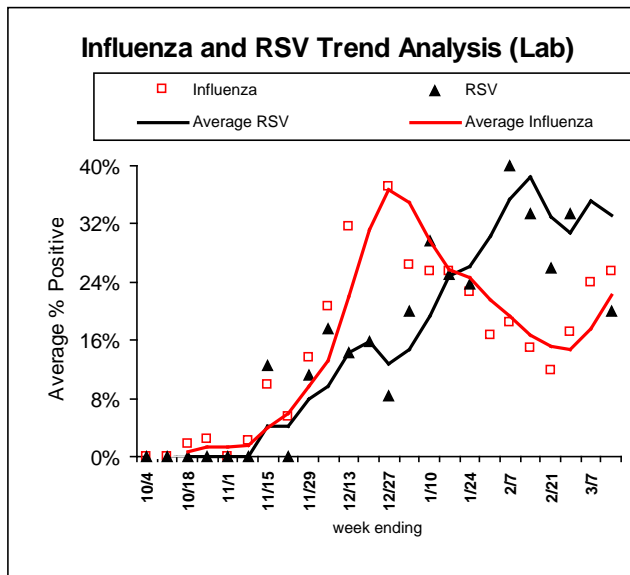
Northeastern Region (ILI activity is Moderate)

INFLUENZA RAPID ANTIGEN TESTS					RSV RAPID ANTIGEN TESTS			INFLUENZA-LIKE ILLNESS		
Tested	Positive			% Positive	Tested	Positive	% Positive	ILI %	Baseline	Threshold
	Flu A	Flu B	Total							
166	8	31	39	23.5%	63	11	17.5%	3.2%	2.1%	3.3%



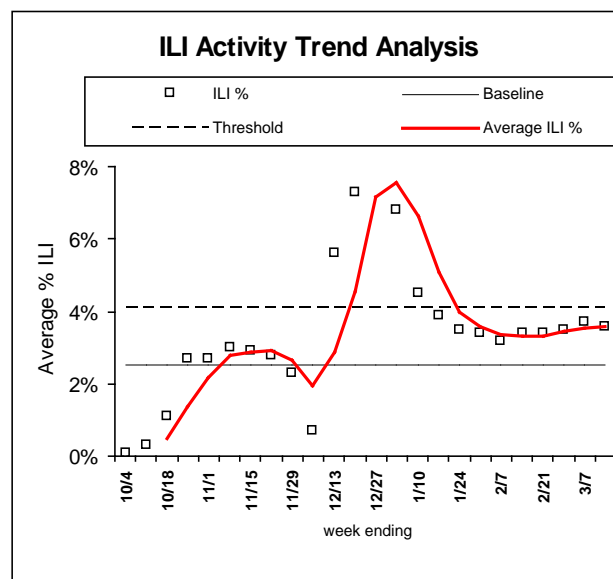
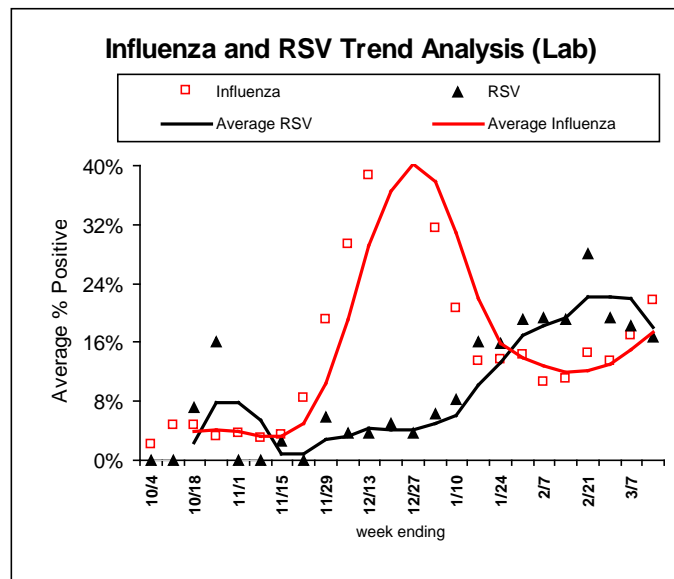
Southern Region (ILI activity is Low)

INFLUENZA RAPID ANTIGEN TESTS				RSV RAPID ANTIGEN TESTS			INFLUENZA-LIKE ILLNESS			
Tested	Positive			% Positive	Tested	Positive	% Positive	ILI %	Baseline	Threshold
	Flu A	Flu B	Total							
177	4	41	45	25.4%	35	7	20.0%	1.2%	3.1%	5.8%



Southeastern Region (ILI activity is Moderate)

INFLUENZA RAPID ANTIGEN TESTS					RSV RAPID ANTIGEN TESTS			INFLUENZA-LIKE ILLNESS		
Tested	Positive			% Positive	Tested	Positive	% Positive	ILI %	Baseline	Threshold
	Flu A	Flu B	Total							
590	10	118	128	21.7%	72	12	16.7%	3.6%	2.5%	4.1%



For the 2014-15 influenza season, data from the Western Region and the Northern Region will be combined and referred to as the Northwestern Region. This change was made in response to the small number of providers who participate in our weekly surveillance in the Northern Region.

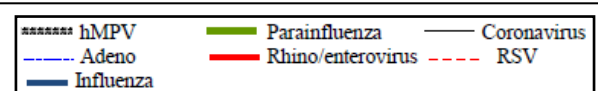
LABORATORY SURVEILLANCE FOR RESPIRATORY VIRUSES (PCR)

Respiratory Agent	Tested	Positive	% Positive	Flu A 2009/H1N1	Flu A Seasonal H3	Flu A (Unk)	Flu B
Influenza	1342	258	19.2%	1	11	31	215

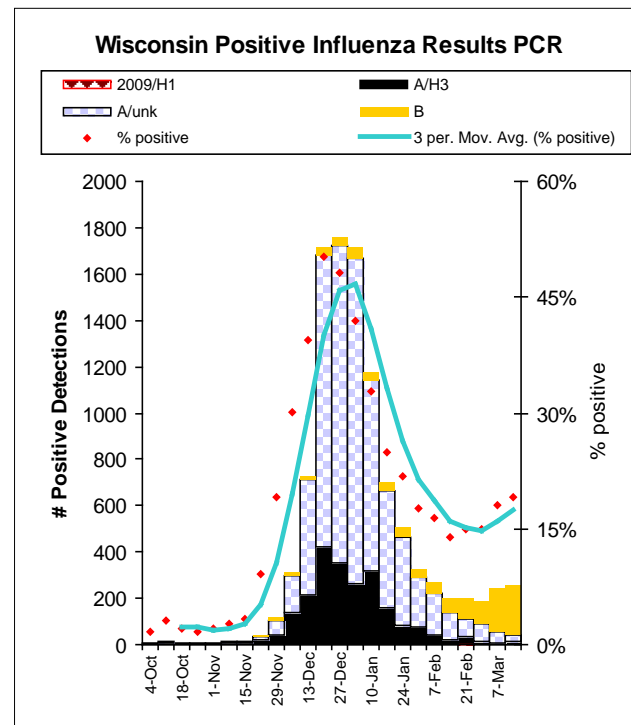
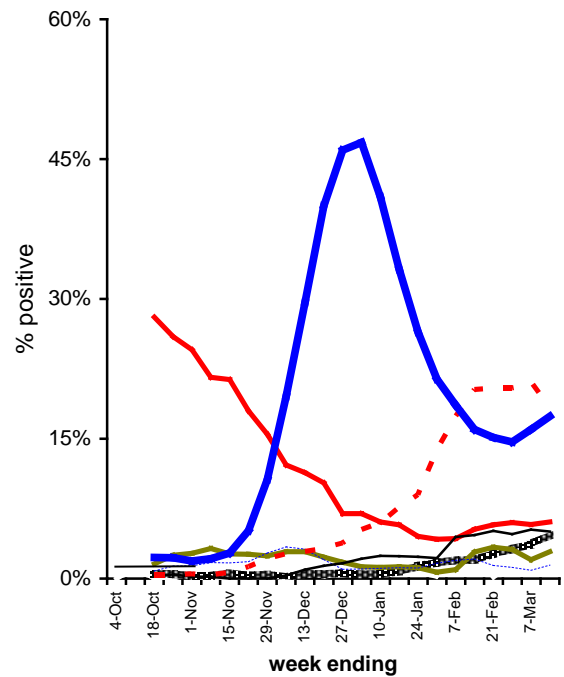
Respiratory Agent	Tested	Positive	% Positive	P1	P2	P3	P4
Parainfluenza	450	19	4.2%	0	0	15	4

Respiratory Agent	Tested	Positive	% Positive	CoV-229E	CoV-OC43	CoV-NL63	CoV-HKU1
Coronavirus	171	4	2.3%	0	2	2	0

Respiratory Agent	Tested	Positive	% Positive
RSV	558	72	12.9%
Human Metapneumovirus	449	30	6.7%
Rhino-entero	371	21	5.7%
Adenovirus	254	4	1.6%



Trends in Respiratory Virus Activity PCR
 using a 3-week moving average

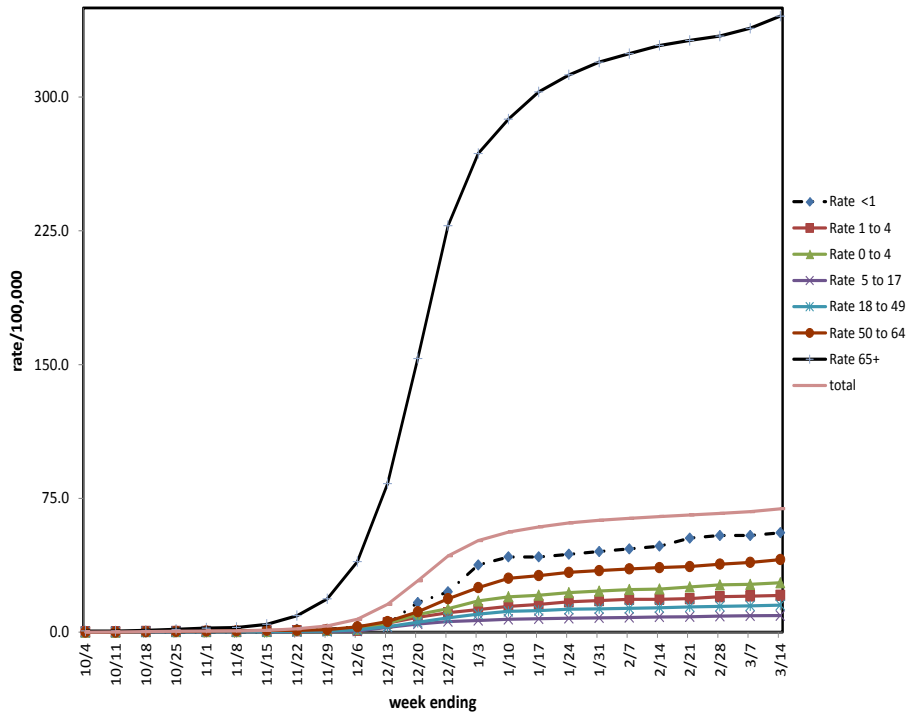


Cumulative number of positive influenza tests By subtype, October 4, 2014 to present						
	2009 A/H3 N2v	Seasonal A/H1 A/H3	A/Unknown	B	Total	
Total Number positive	1	25	2346	7245	1010	10,627
% of Total number positive	<1%	<1%	22%	68%	10%	100%
Total Influenza A % 90%				Total Influenza B % 10%		

Influenza-associated Hospitalizations, October 4, 2014 to present

Age Group	Total Number Reported (2014-15)	Influenza Subtypes				Not reported	Admitted to ICU	Required Mechanical Ventilation
		2009 H1N1	H3N2	A/Unknown or undetermined	B			
< 1 year	43	0	15	21	4	3	4	1
1 to 4	59	0	9	41	7	2	10	2
5 to 17	84	2	14	53	11	4	17	8
18 to 49	388	2	56	270	48	12	54	21
50 to 64	597	2	90	405	82	18	95	25
65 and over	2975	10	438	2237	179	111	296	60
Total	4146	16	622	3027	331	150	476	117

Cumulative rate of Influenza-associated Hospitalizations by week, 2014-2015



Incidence/100,000

Age group	Wisconsin	National
<1	55.7	N/A
1 to 4	20.6	N/A
0 to 4	27.6	49.5
5 to 17	9.2	14.1
18 to 49	15.1	16.1
50 to 64	40.6	44.4
65+	345.4	277.9
total	69.1	55.7

NATIONAL INFLUENZA SURVEILLANCE

Influenza Virus Characterization*: CDC has characterized 1,233 influenza viruses [27 A(H1N1)pdm09, 983 A(H3N2), and 223 influenza B viruses] collected by U.S. laboratories since October 1, 2014.

Influenza A Virus [1,010]

- **A(H1N1)pdm09 [27]:** All 27 H1N1 viruses tested were characterized as A/California/7/2009-like, the influenza A (H1N1) component of the 2014-2015 Northern Hemisphere influenza vaccine.
- **A(H3N2) [983]:** 242 (24.6%) of the 983 H3N2 viruses tested have been characterized as A/Texas/50/2012-like, the influenza A (H3N2) component of the 2014-2015 Northern Hemisphere influenza vaccine. 741 (75.4%) of the 983 viruses tested showed either reduced titers with antiserum produced against A/Texas/50/2012 or belonged to a genetic group that typically shows reduced titers to A/Texas/50/2012. Among viruses that showed reduced titers with antiserum raised against A/Texas/50/2012, most were antigenically similar to A/Switzerland/9715293/2013, the H3N2 virus selected for the 2015 Southern Hemisphere influenza vaccine. A/Switzerland/9715293/2013 is related to, but antigenically and genetically distinguishable from, the A/Texas/50/2012 vaccine virus. A/Switzerland-like H3N2 viruses were first detected in the United States in small numbers in March of 2014 and began to increase through the spring and summer.

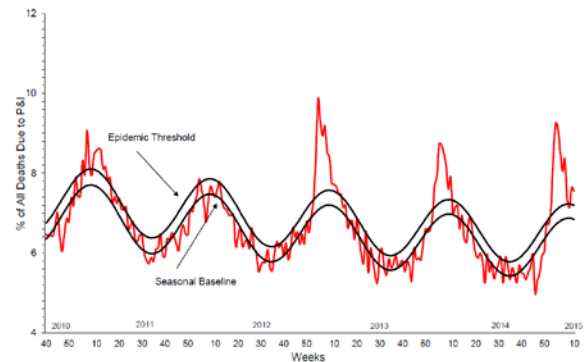
Influenza B Virus [223]

157 (70.4%) of the influenza B viruses tested belong to B/Yamagata/16/88 lineage and the remaining 66 (29.6%) influenza B viruses tested belong to B/Victoria/02/87 lineage.

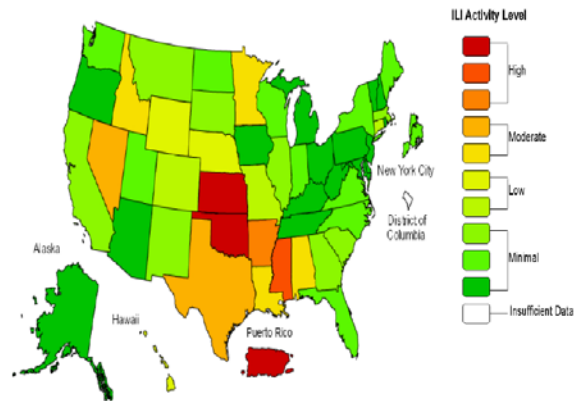
- **Yamagata Lineage [157]:** 150 (95.5%) of the 157 B/Yamagata-lineage viruses were characterized as B/Massachusetts/2/2012-like, which is included as an influenza B component of the 2014-2015 Northern Hemisphere trivalent and quadrivalent influenza vaccines. Seven (4.5%) of the B/Yamagata-lineage viruses tested showed reduced titers to B/Massachusetts/2/2012.
- **Victoria Lineage [66]:** 62 (93.9%) of the 66 B/Victoria-lineage viruses were characterized as B/Brisbane/60/2008-like, the virus that is included as an influenza B component of the 2014-2015 Northern Hemisphere quadrivalent influenza vaccine. Four (6.1%) of the B/Victoria-lineage viruses tested showed reduced titers to B/Brisbane/60/2008.

Pneumonia and Influenza (P&I) Mortality Surveillance: During week 10, 7.6% of all deaths reported through the 122 Cities Mortality Reporting System were due to P&I. This percentage was above the epidemic threshold of 7.2% for week 10.

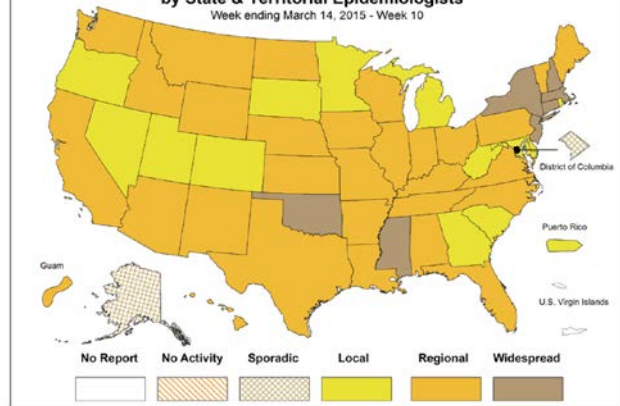
Pneumonia and Influenza Mortality for 122 U.S. Cities Week ending March 14, 2015



Influenza-Like Illness (ILI) Activity Level Indicator Determined by Data Reported to ILINet 2014-15 Influenza Season Week 10 ending Mar 14, 2015



Weekly Influenza Activity Estimates Reported by State & Territorial Epidemiologists* Week ending March 14, 2015 - Week 10



* This map indicates geographic spread & does not measure the severity of influenza activity

*This map uses the proportion of outpatient visits to health care providers for influenza-like illness to measure the ILI activity level within state. It does not, however, measure the extent of geographic spread of flu within a state. Therefore, outbreaks occurring in a single city could cause the state to display high activity levels.

Influenza Virus Characterization*: CDC has characterized 1,233 influenza viruses [27 A(H1N1)pdm09, 983 A(H3N2), and 223 influenza B viruses] collected by U.S. laboratories since October 1, 2014.

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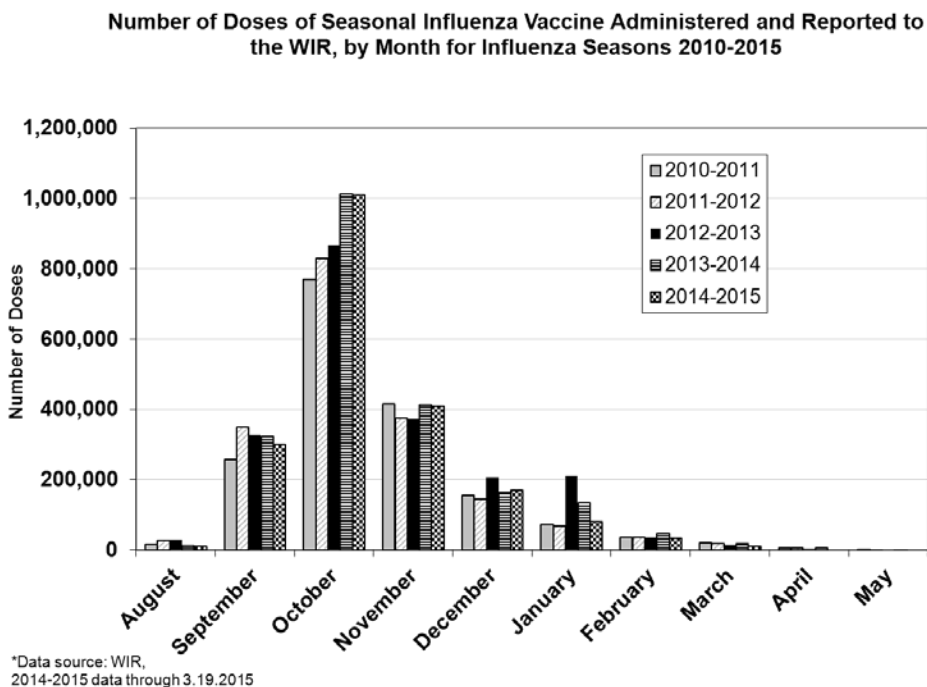
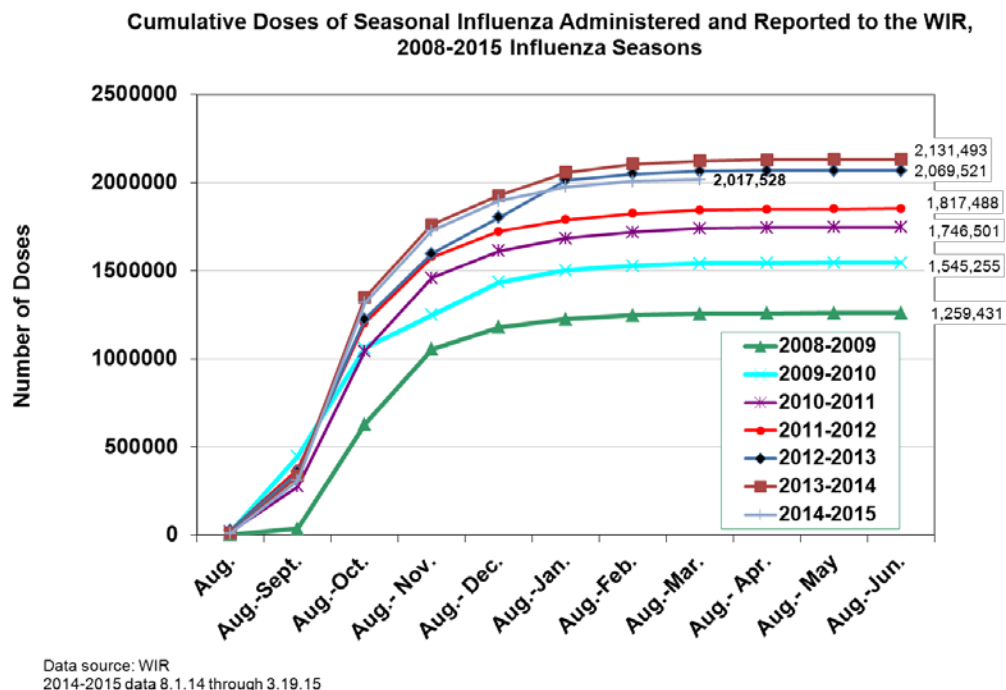
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Neuraminidase Inhibitor Resistance Testing Results on Samples Collected Since October 1, 2014

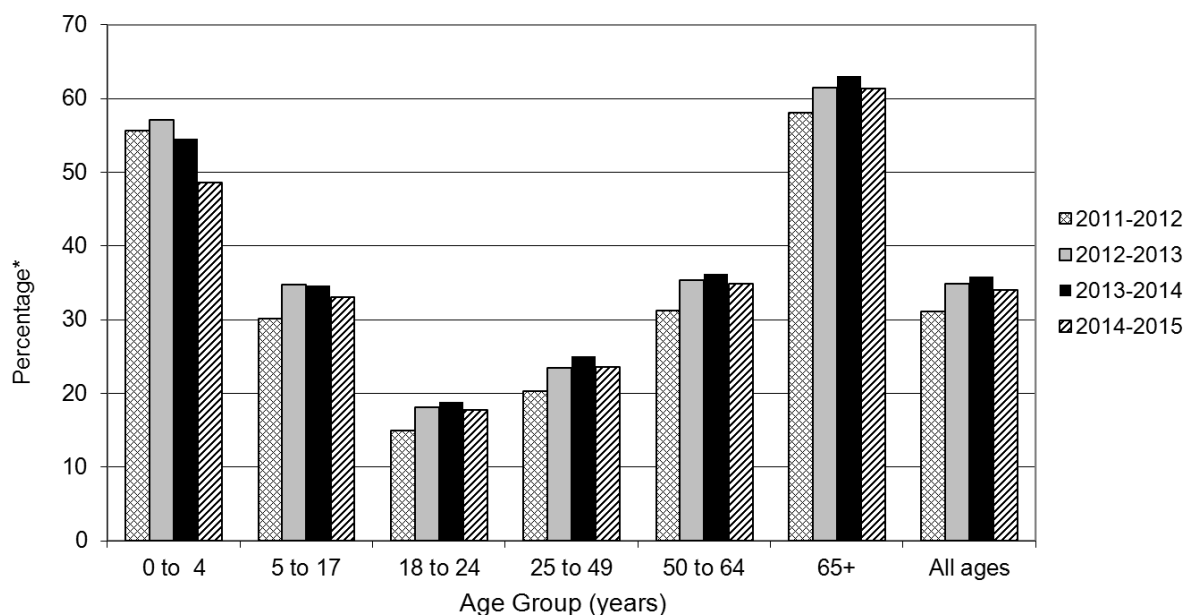
	Oseltamivir		Zanamivir		Peramivir	
	Virus Samples tested (n)	Resistant Viruses, Number (%)	Virus Samples tested (n)	Resistant Viruses, Number (%)	Virus Samples tested (n)	Resistant Viruses, Number (%)
Influenza A(H1N1)pdm09	34	1 (2.9)	30	0 (0.0)	34	1 (2.9)
Influenza A (H3N2)	2,298	0 (0.0)	2,298	0 (0.0)	1,322	0 (0.0)
Influenza B	284	0 (0.0)	284	0 (0.0)	284	0 (0.0)

Seasonal Influenza Vaccination in Wisconsin **Based on Doses Reported to the Wisconsin Immunization Registry (WIR)** **March 20, 2015**

Data for 2014-2015 Season Reported for 8.1.14-3.19.2015

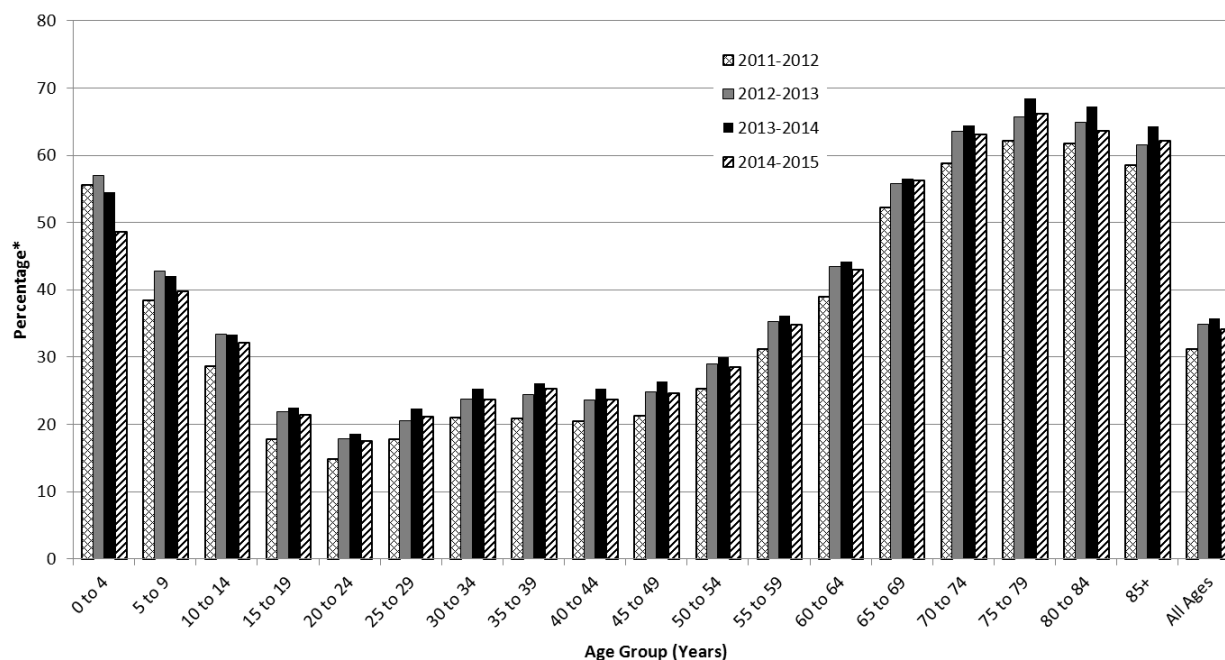


**Rates of Influenza Vaccination in Wisconsin by Age Group, 2011-2015 Influenza Seasons,
Based on Doses Reported to the Wisconsin Immunization Registry (WIR)**



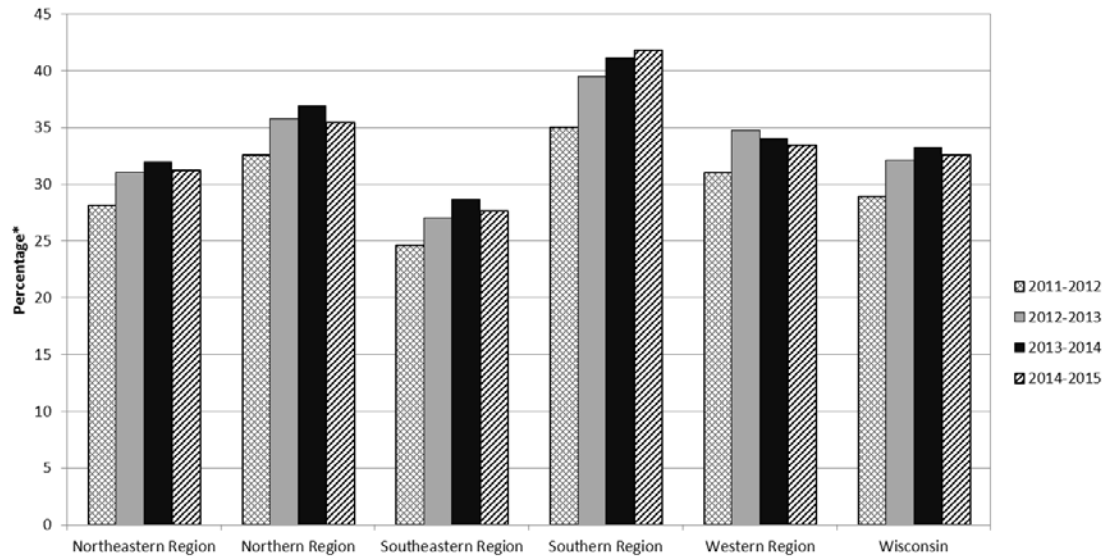
* Numerator: Number of persons recorded in the WIR as having received at least one dose of seasonal influenza vaccine by age group. For 2011-2012 season, receipt of vaccine between 8/1/11 and 7/31/12, assessed 12/2/2013. For 2012-2013 season, doses administered between 8/1/12 to 7/31/13, assessed 12/2/2013. For 2013-2014, doses administered between 8/1/13 to 7/31/14, assessed 8/15/14. For 2014-2015, doses administered between 8/1/14 to 3/19/2015, assessed 3/20/2015. Denominator source: 2011, 2012 and 2013 Wisconsin Interactive Statistics on Health (WISH) population estimates, by age group.

**Rates of Influenza Vaccination in Wisconsin by Age Group, 2011-2015 Influenza Seasons, Based on Doses
Reported to the Wisconsin Immunization Registry (WIR)**



* Numerator: Number of persons recorded in the WIR as having received at least one dose of seasonal influenza vaccine by age group. For 2011-2012 season, receipt of vaccine between 8/1/11 and 7/31/12, assessed 12/2/13. For 2012-2013 season, doses administered between 8/1/12 to 7/31/13, assessed 12/2/2013. For 2013-2014, doses administered between 8/1/13 to 7/31/14, assessed 8/15/14. For 2014-2015, doses administered between 8/1/14 to 3/19/2015, assessed 3/20/2015. Denominator source: 2011, 2012 and 2013 Wisconsin Interactive Statistics on Health (WISH) population estimates, by age group.

**Rates of Influenza Vaccination in Wisconsin by Region, 2011-2015 Influenza Seasons,
Based on Doses Reported to the Wisconsin Immunization Registry (WIR)**



* Numerator: Number of persons recorded in the WIR as having received at least one dose of seasonal influenza vaccine by region. For 2011-2012 season, receipt of vaccine between 8/1/11 and 7/31/12, assessed 11/27/13. For 2012-2013 season, doses administered between 8/1/12 to 7/31/13, assessed 11/27/13. For 2013-2014, doses administered between 8/1/13 to 7/31/14, assessed 8/15/14. For 2014-2015, doses administered between 8/1/14 to 3/19/15, assessed on 3/20/15. Denominator source: 2011, 2012 and 2013 Wisconsin Interactive Statistics on Health (WISH) population estimates, by region.

- These graphs include only doses of seasonal influenza vaccine administered and reported to the Wisconsin Immunization Registry (WIR).
- Data for 2014-15 season is incomplete because of the expected lag between the vaccine administration date and the date reported to the WIR, which may be as short as one day or as long as several months, depending on the submitter. Therefore, the current season's data will be adjusted as additional data is received.
- While use of the WIR is not mandatory, the WIR receives data from a variety of sources, including health care providers, health maintenance organizations, local health departments and tribal health centers/clinics, schools and pharmacies.
- For additional information regarding the immunization data, please contact Ashley Petit, epidemiologist, with the Wisconsin Immunization Program at (608) 266-7797.